Supco® EM5

Multifunctional Environmental Meter

User Manual

SEALED UNIT PARTS CO., INC.

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1. Safety information

Read the following safety information carefully before attempting to operate or service the meter. Use the meter only as specified in this manual, otherwise, the protection provided by the meter may be impaired. With proper use and care, your digital meter will provide service for years.

1.2 During use

- Operate the meter under the stated temperature and humidity conditions.
- Please do not store or use meter in areas exposed to direct sunlight, high temperature, humidity or condensation.
- Do not touch or manipulate the sensor.
- Do not expose the sensor to direct light, this may cause a false reading.
- Do not expose the sensor to static electricity.
- Never place the sensor directly into water.

1.3 Symbols

CE Complies with EMC (Electromagnetic Compatibility Directive),
⚠ Important safety information.

1.4 Maintenance

- Repairs or servicing not covered in this manual should only be performed by qualified personnel.

- If dust is present on the sensor, use clean air to blow it away or use alcohol to lightly scrub it away.
  Do not use other chemicals for cleaning the sensor.

- Do not use abrasives or solvents on the meter, use a damp cloth and mild detergent only.

- Always set the power switch to the OFF position when the meter is not in use.

- If the meter is to be stored for a long period of time, the batteries should be removed to prevent damage to the unit.

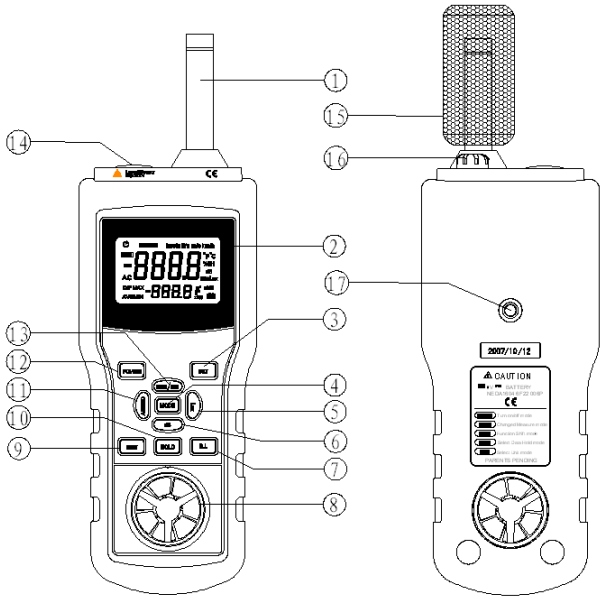
2. Description

The EM5 Digital Multifunctional Environmental Meter combines the function of Sound Level, Luminometer, Relative Humidity Meter, Temperature Meter and Anemometer.

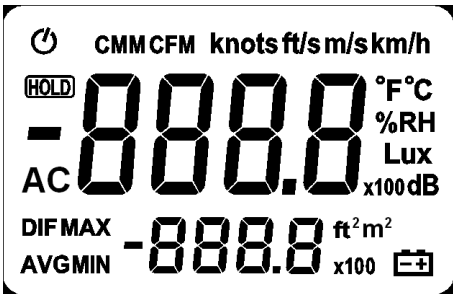
- Large LCD and back light for easy reading.
- Data hold function.
- Auto ranging feature.
- MAX, MIN, AVG and DIF (MIN-MAX) value.
- Auto/manual power off.
- Low battery indication.

2.1 Button and components identification

(1) Microphone.
(2) LCD Display.
(3) “SET” - Sets the Parameters for Air Volume Measurement.
(4) “MODE” - Selects MAX,MIN,AVG and DIF (MAX-MIN).
(5) “LUX” - Selects Light Meter Function.
(6) “dB” - Selects Sound Level Value Measurement.
(7) “BL” - Activates Back Light Feature.
(8) Airflow Sensor.
(9) “UNIT” - Selects the Units of Measurement.
(10) “HOLD” - Data Hold Function.
(11) “ANEMO” - Air Flow and Volume Features.
(12) “POWER” - Power “On” Manual “Off”.
(13) “TEMP/%RH” - Activates Temperature and Relative Humidity Measurement.
(14) Light Sensor.
(15) Windscreen.
(16) Temperature / Humidity Sensor.
(17) Tripod Connector.



2.2 LCD illustration



°F, °C	Fahrenheit / Centigrade indication.
%RH	Relative Humidity indication.
m/s, km/h, ft/s, Knots	The unit of wind speed indication.
CMM,CFM	The unit of airflow indication.
ft2, m2	The unit of area indication.
X10, X100	The multiplier indication of airflow and illuminance.
Lux	The unit of illuminance.
dB	The unit of sound level indication.
A,C	A-weighting, C-weighting indication.
MAX	The maximum value is displayed.
MIN	The minimum value is displayed.
AVG	The average value is displayed.
DIF	The MAX-MIN value is displayed.
	This indicates auto power off is enabled.
HOLD	This indicates that the display data is being held.
	The battery is not sufficient for proper operation.

3. Specifications

- Numerical Display: 4 digit Liquid Crystal Display.
- Response Time: 2 times/second.
- Operating Environment: 14°F to 140°F (-10°C to 60°C).
- Storage Environment: 14°F to 122°F (-10°C to 50°C).
- Power Requirements: 9V battery.
- Low Battery Indication: displayed.
- Dimensions: 11”(L) x 3.5”(W) x 2”(H)
  (280(L) x 89(W) x 50(H)mm).
- Weight: Approximately 15.3 oz (430g).

3.1 Temperature

Range	Resolution	Accuracy
14°F to 140°F	0.1°F	±2.7°F
-10°C to 60°C	0.1°C	±1.5°C

3.2 Relative Humidity

Range	Resolution	Accuracy
20 to 80%RH	0.1%RH	±3%RH@77°F
(<20 >80)%RH	0.1%RH	±5%RH@77°F

3.3 Sound level (dB)

Range	Resolution	Accuracy
30 to 130dB(A)	0.1dB	±1.5dB
35 to 130dB(C)	0.1dB	±1.5dB

Test condition: 94dB 1kHz sine wave.

Response frequency: 100 to 8000Hz.

3.4 Illuminance (Lux)

Range	Resolution	Accuracy
0 to 2000Lux	1Lux	±(5.0% of rdg + 10digits) at color temp. 2850K calibrated to standard incandescent lamp at color temperature 2856K
X10(20000)	10 Lux	
X100(50000)	100 Lux	

3.5 Wind Speed

Range	Resolution	Accuracy
0.5 to 20m/s	0.1m/s	±(3% of rdg+10digits)
1.8 to 72km/h	0.1km/h	±(3% of rdg+10digits)
1.6 to 65.7ft/s	0.1ft/s	±(3% of rdg+10digits)
0.9 to 38.9knots	0.1knots	±(3% of rdg+10digits)

3.6 Airflow

Range	Resolution	Accuracy
0 to 999900CFM	0.1 to 100 CFM	±(3% of rdg+10digits)
0 to 999900CMM	0.1 to 1000 CMM	±(3% of rdg+10digits)

4. Operating Instructions

- **Power-up**
  Press the “POWER” button to turn the meter ON or OFF.

- **Auto power off**
  By default, when the meter is powered on, it is under auto power off mode. The meter will power itself off after 20 minutes if no key operation. Press and hold "POWER" button then press “SET” button to disable the auto power off.

- **Read hold**
  Hold the present reading and keep it on the display by pressing the “HOLD” button. When the held data is no longer needed, release the data-hold operation by pressing “HOLD” button again.

- **Back light**
  Press “BL” button to turn on the back light which will last for 10 sec. To turn off at any time press the “BL” button again.

NOTE:

- LED is the main source of back light. Its working current is large. Frequent use of back light will shorten the battery life.

- When the battery voltage is less than 7V, it will show . If back light is used at the same time, may come up. When shows, the accuracy of the measurement can not be assured. Replace the battery when appears and back light is not in use.

- **AVG/MAX/MIN/DIF measurement**
  Press the “MODE” button, to select AVG/MAX/MIN/DIF(MAX-MIN) value to measure.

4.6 Temperature measurement

For measurement, place the sensor probe in the environment to be tested. Press the “TEMP/%RH” button to measure. When the meter is first powered on, the default scale setting is set at Celsius °C scale. The user may change it to Fahrenheit °F by pressing “UNIT” button and vice versa to Celsius by pressing “UNIT” button again.

4.7 Humidity measurement

For measurement, place the sensor probe in the tested environment. Press the “TEMP/%RH” two times. The meter will enter Humidity measurement mode. The response time of the sensor is 5 seconds.

4.8 Sound level (dB) measurement

Aim the sensor on top of the meter to the sound source. Press the “dB” button to measure. The LCD display will show the sound level at the meter. When the meter is first powered on, the default scale setting is set at A-Weighting scale. The user may change it to C-Weighting by pressing “UNIT” button and A-Weighting by pressing “UNIT” button again.

NOTE:

Strong wind striking the microphone may cause inaccurate measurement in windy locations. A windscreen should be used in front of microphone.

4.9 Luminance(Lux) measurement

Move the sensor on top of the meter to light source in a horizontal position. Press the “Lux” button to measure. The LCD display will show the luminance at the meter.

4.10 Wind speed measurement

For measurement, place the sensor of anemometer in the environment to be tested, be sure the fan is in a upright position to the air current, and press the “ANEMO” button to measure. When the meter is first powered on, the default scale setting is set at m/s scale. The user may change it to km/h, ft/m and knots by pressing “UNIT” button.

4.11 Air flow measurement

Before measurement press “SET” button to enter the area of the air current. Press “UNIT” button to select which digit of the area to change. Press “HOLD” button and “BL” button to change the selection to the value needed. Press “SET” button to save the setting.

Place the sensor for anemometer in the environment to be tested, be sure fan is in upright position, face to the air current, and press “ANEMO” button to measure.

When the meter is powered on the default scale is CMM, area set default is $1.0m^2$. To change to CFM press “UNIT’ button, then set area.

NOTE:

While measuring the wind speed and the air flow, avoid direct sunlight.

4.12 Battery replacement

If the sign appears on the LCD display, it indicates that the battery should be replaced. Turn the unit off. Remove the battery cover. Replace the exhausted battery with a new one and replace the battery cover.

4.13 Use the tripod connector

If needed, the meter can be fixed on the tripod.

5. Accessories Included

- Battery: 9V 6F22.
- Windbreak.
- Operating Manual.
- Tripod.
- Durable Storage Case.

Rectangular

H (in)/W (in)	2.0	4.0	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0	22.0	24.0
2.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
4.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4
6.0	0.1	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.7
8.0	0.1	0.1	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.7	0.8	0.9
10.0	0.1	0.2	0.3	0.4	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.0
12.0	0.1	0.2	0.3	0.4	0.5	0.7	0.8	0.9	1.0	1.1	1.9	1.3
14.0	0.1	0.3	0.4	0.5	0.6	0.8	0.9	1.0	1.1	1.3	1.4	1.5
16.0	0.1	0.3	0.4	0.6	0.7	0.9	1.0	1.2	1.3	1.4	1.6	1.7
18.0	0.2	0.3	0.5	0.7	0.8	1.0	1.2	1.3	1.5	1.6	1.8	2.0
20.0	0.2	0.3	0.5	0.7	0.9	1.1	1.3	1.4	1.6	1.8	2.0	2.2
22.0	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4
24.0	0.2	0.4	0.7	0.9	1.1	1.3	1.5	1.7	2.0	2.2	2.4	2.6

Circular

Diameter	sq. ft.
6.0	0.1
8.0	0.2
10.0	0.4
12.0	0.5
14.0	0.7
16.0	0.9
18.0	1.1

Free Area Calculation in sq. ft.
Dimensions (H/W) in inches

Note: Free area in this chart is based on 0.65 of face area

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